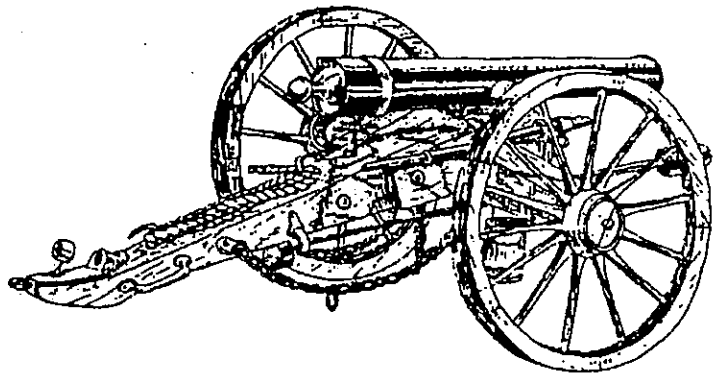


# **CIVIL WAR FIELD ARTILLERY HANDBOOK**

## **Battle of Gettysburg**



**1-3 July 1863**

**United States Marine Corps  
Command and Staff College  
Quantico, Virginia**

# **CIVIL WAR FIELD ARTILLERY HANDBOOK Battle of Gettysburg**

## **FORWARD**

This handbook will provide you, the reader, with a general overview of the field artillery as it was in Gettysburg in 1863. The information contained in this pamphlet represents the best available information at USMC CSC and MCCDC. One conclusion I have drawn from this research is that there are at least two answers to every question when it comes to the artillery in the Civil War. Whenever possible, I used source material such as the Table of Fire for the weapon discussed. My sources include:

- "Artillery Through the Ages" by Albert Manucy (1949).
- "Canons: An Introduction to Civil War Artillery" by Dean S. Thomas (1985).
- "Arms and Equipment of the Civil War" by Jack Coggins (1962).
- "The Battle of Gettysburg" by Conte de Paris (1886).

This publication is an unofficial pamphlet, and any errors or omissions contained in this handbook are my responsibility. I hope that this handbook proves to be helpful in your study of the Battle of Gettysburg. Any suggestions to improve this document for future classes would be appreciated.

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MAJ, FA  
United States Army  
August 1994

**CIVIL WAR  
FIELD ARTILLERY HANDBOOK  
Battle of Gettysburg**

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# Battle of Gettysburg

## Overall Comparison of Available Forces

Item of Comparison	North	South
Number of Field Pieces	366	272
Number of Batteries:		
— Light Batteries	62	62
— Horse Batteries	11	3
— Other Batteries	3	0
Total Batteries	76	65

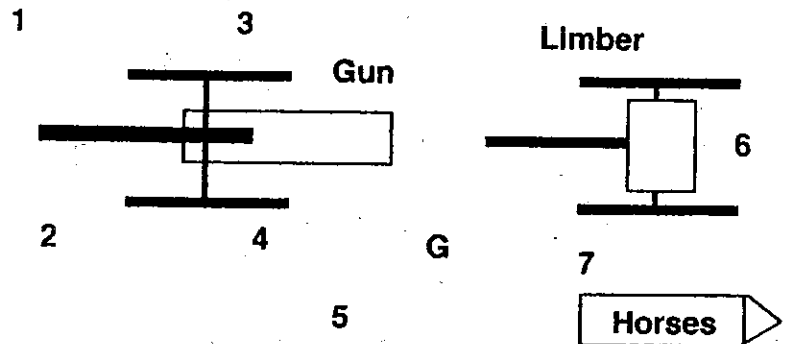
## Battery Organization

Item of Comparison	North	South
Sections per Battery*	6	4
Horses per Section	6	4
Soldiers per Section	8	6 to 8
Guns per Section	1	1
Rank of Section Chief (Gunner)	Sergeant	Sergeant
Rate of Fire (In aimed shots per minute)	2 per minute	2 per minute
Emplacement Time	30-45 sec	30-45 sec
Minimum Crew Needed to work the gun	2	2

\* The South tried to maintain 6 sections, but lacked the resources to do so.

## General Concept of Crew Drill and Section Organization

The diagram below shows the relative positions of the equipment and crew for a light gun section.



At the command **COMMENCE FIRING**, the gunner ordered the section to execute the following actions\*:

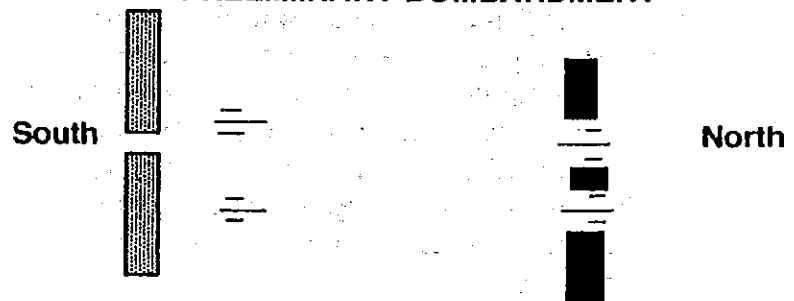
- **LOAD.** 1 sponged the tube to douse any hot embers in the gun tube. 5 handed 2 a round, which 2 loaded and 1 rammed. 3 and 4 moved the gun while G aimed it. 6 and 7 prepared ammunition and passed it to 5.
- **READY.** 1 and 2 stepped clear. G moved to a place where he could watch the round's trajectory. 3 protected the vent after puncturing the powder bag inside the gun with a prick. 4 attached a lanyard to the friction primer, then inserted the primer into the vent and moved to the rear.
- **FIRE.** 3 quickly stepped clear. 4 then pulled the lanyard and fired the gun. G then ordered 1, 2, 3, and 4 to push the gun back into position (also known as "push into battery"). Then it was back to **LOAD** until the command **CEASE FIRE** was received.

\* This sequence represents a general flow of section drill. Actual drill could include as many as 7 commands.

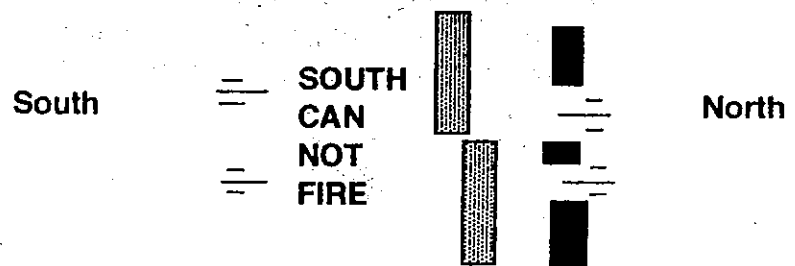
## General Concept of Battery Employment on the Battlefield

The battery commander deployed his howitzers by sections, by platoon (two sections under a lieutenant), or by battery. The location of the guns relative to the infantry was based on the situation and the mission at hand. During the Battle of Gettysburg, the artillery was a supporting weapon, normally employed in line with the infantry. Also, most of the artillery were GUNS—they needed a direct line of fire to hit the target. Finally, the shell ammunition often exploded early—if fired over the head of friendly soldier casualties could (and did) occur. Once attacking infantrymen moved in front of the howitzers, the gunners ceased fire. Pickett's charge provides us with an excellent case study of the use of artillery in preliminary bombardment and support of defending infantry.

### PRELIMINARY BOMBARDMENT



### THE ATTACK



## Types of Ammunition

**SHOT**—The solid iron cannonball most of us associate with the Civil War. Normally employed beyond 500 yards. Best results against buildings or anything the commander wishes to batter. Good against massed Infantry, fair against enemy artillery and stationary cavalry.



**SHOT**



**SHELL, CASE SHOT**

**SHELL**—A hollow sphere or cone filled with a black powder bursting charge. When the charge exploded, the casing shattered into deadly fragments. The charge was detonated by a wooden or metallic fuze plugs which were ignited by the flame of the cannon's propellant. Normally employed from 500 yards to 1500 yards. Notoriously unreliable, but good effects against enemy morale. In enough volume, good against enemy in woods, cavalry, and wooden buildings.

**CASE SHOT**—A hollow sphere or cone filled with a small bursting charge and lots of iron or lead balls. When the charge exploded, the balls were released in a manner similar to a shotgun. The charge was detonated by a wooden or metallic fuze plugs which were ignited by the flame of the cannon's propellant. Normally employed from 500 yards to 1500 yards. Somewhat unreliable, but good effects against massed enemy in open given enough volume.

**CANISTER/GRAPESHOT**—Same as case shot, but designed to break apart mechanically once the round clears the tube. Cylindrical in shape. Normally employed against enemy cavalry and Infantry inside of 500 yards, with superb results.



**GRAPESHOT**



**CANISTER**

## Guns and Howitzers Used at Gettysburg

Type of Field Piece	North	South
Number of Field Pieces	366	272
Model 1841 Field Gun (6 pdr Bronze)	No	Yes (See 1)
Model 1857 Napoleon Field Gun (12 pdr Bronze)	Yes	Yes
Confederate 12 pdr Howitzer	No	Yes (See 2)
Model 1861/1863 Parrot Field Rifle (10 pdr Iron)	Yes (See 4)	Yes (See 4)
Parrot Field Rifle (20 pdr Iron)	Yes (See 4)	Yes (See 4)
3 Inch Ordnance Rifle (Rodman)	Yes (See 4)	No (See 4)
Whitworth Breech Loading Rifle (12 pdr, 2.75 In)	No	Yes (See 3) (See 4)

**Notes:**

1—The South had 6 In Gettysburg. Considered obsolete.

2—The South had 26 In Gettysburg. Considered obsolete due to reduced range.

3—The South had 12 In Gettysburg. Considered a good weapon, especially in accuracy.

4—These weapons have grooves in the inside of the cannon (called rifles) which increased accuracy.

## Guns and Howitzers—A Comparison

Type of Field Piece	Model 1857 Napoleon (12 pdr Bronze)	Parrot Field Rifle (10 pdr Iron)	Parrot Field Rifle (20 pdr Iron)
Caliber (Inches)	4.62	3	3.67
Length of Cannon (Inches)	66	74	84
Weight of Entire Weapon (pounds)	2355	2030	2880
Weight of Projectile (pounds)	12.3	9.5	20
Weight of a Charge (pounds)	2.5	1.0	2.0
Range 5 degrees elev	1680 yds	1900 yds	2100 yds
Range 15 degrees elev	Off Table	4200 yds	4400 yds

Type of Field Piece	3 Inch Ordnance Rifle	Whitworth Breech- loading Rifle (12 p)	M119A1 155mm Howitzer (Modern)
Caliber (Inches)	3	2.75	4.13
Length of Cannon (Inches)	69	84	Approx. 120
Weight of Entire Weapon (pounds)	1940	2130	4187
Weight of Projectile (pounds)	9.5	12.0	42
Weight of a Charge (pounds)	1.0	2.0	4.0
Range 5 degrees elev	1900 yds	3000 yds	21,000 yds
Range 15 degrees elev	4200 yds	5000 yds(1)	at 40 deg

Notes: Due to the period, all values should be considered approximations.

1. The Whitworth range is approximate. It is rated at 10,000 yards at 35 degrees (max range). The M119A1 is a modern day weapon—presented for comparison.

# **Artillery Order of Battle— Battle of Gettysburg**

## **ARMY OF THE POTOMAC**

**I Corps Arty Bde (6 Btrys)—COL C.S. Wainwright**  
**II Corps Arty Bde (5 Btrys)—CPT John G. Hazard**  
**III Corps Arty Bde (5 Btrys)—CPT G. E. Randolph**  
**V Corps Arty Bde (5 Btrys)—CPT A. P. Martin**  
**VI Corps Arty Bde (8 Btrys)—COL Charles H. Tankins**  
**XI Corps Arty Bde (5 Btrys)—MAJ Thomas W. Osborne**  
**XII Corps Arty Bde (4 Btrys)—LT E. D. Muhlenberg**  
**Cavalry Corps**  
— One battery heavy arty attached to 1st Bde, 2d Div  
— 1st Bde Horse Arty (6 Btrys)—CPT J. M. Robertson  
— 2nd Bde Horse Arty (5 Btrys)—CPT John C. Tidbell  
**Army of the Potomac Artillery—BG Henry J. Hunt**  
— 5 brigade headquarters, 26 batteries

## **ARMY OF NORTHERN VIRGINIA**

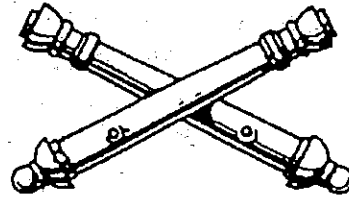
**I Corps—3 Divisional Artillery Battalions of 4 Btrys**  
    **I Corps Reserve Arty (10 Btrys)—COL J. B. Walton**  
**II Corps—3 Divisional Artillery Battalions of 4 Btrys**  
    **II Corps Reserve Arty (8 Btrys)—COL J. T. Brown**  
**III Corps—2 Divisional Artillery Battalions of 4 Btrys**  
    **Anderson's Divisional Arty Bn had 3 Btrys**  
    **III Corps Reserve Arty (9 Btrys)—COL R. L. Walker**  
**Stuart's Division—3 Batteries of Horse Artillery**

**This order of battle lists all artillery available to the commanders--not all batteries participated in the battle.**

**Source: "Battle of Gettysburg" by Conte de Paris, 1886.**

*"The air was all murderous iron; it seemed as if there couldn't  
be room for any soldier upright and in motion."*

*General Hays, on the bombardment of Cemetery Ridge  
by the Confederate Artillery, 3 July 1863.*



**"The Confederates were making just one little mistake in  
this shattering bombardment: uniformly, they were firing  
just a little too high."**

**Bruce Catton, *Glory Road***